

Step 1:

1990 Base Year VOC Inventory (anthropogenic and biogenic) for the 9 original Nonattainment Counties.

• Large Industrial Sources	49.15 tpd
• Small Industrial Sources	68.86 tpd
• Area Sources	84.85 tpd
• Non-Highway Sources	46.29 tpd
• Highway Mobile Sources	162.6 tpd
• Biogenic Emissions	150.40 tpd
TOTAL	562.15 tpd

Step 2:

1990 Rate of Progress Inventory (9 Counties)

• Large Industrial Sources	49.15 tpd
• Small Industrial Sources	68.86 tpd
• Area Sources	84.85 tpd
• Non-Highway Mobile Sources	46.29 tpd
• Highway Mobile Sources	162.6 tpd
TOTAL	411.75 tpd

Step 2.5

Remove Keweenaw County from the Baseline

• 9 County ROP Emissions	411.75 tpd
• Keweenaw County ROP Emissions	
• Large Industrial	0.86 tpd
• Small Industrial	0.40 tpd
• Area	1.36 tpd
• Non-Highway Mobile	0.83 tpd
• Highway Mobile	1.33 tpd

TOTAL Keweenaw Anthropogenic VOC 4.78 tpd

TOTAL 8 County ROP Inventory 406.97 tpd

Step 3:

Adjust Baseline to remove RACT Fix Up and FMVCP/RFP

Sector	Adjustments				
	1996	1999	2002	2005	2007
Point Sources	0	0	0	0	0
Area Sources	1.66*	1.66*	1.66*	1.66*	1.66*
Highway Mobile	67.58	76.3 tpd	79.6 tpd	81.4 tpd	81.6 tpd
Non-Highway Mobile	0	0	0	0	0
TOTAL	69.25	77.96 tpd	81.26 tpd	83.06 tpd	83.26 tpd

ADJUSTED BASE YEAR VOC Inventory

1996	1999	2002	2005	2007
337.72	329.01	325.71 tpd	323.91 tpd	323.71 tpd

Fleet Turnover CF -- 8.71 tpd 3.3 tpd 1.8 tpd 0.2 tpd

* stage 2 vapor recovery emissions attributable to noncreditable change in RVP. Stage 2 is listed as an area source but is recognized for CMAQ purposes as a mobile source.

ADJUSTED BASE YEAR VOC Inventory

1996	1999	2002	2005	2007
337.72 tpd	329.01 tpd	325.71 tpd	323.91 tpd	323.71 tpd

ROP Calculations

USEPA method

additional tons of reduction needed	2002	2005	2007
ABY*(9%-r)(includes 3% contingency in 2007)	325.71*.035	323.91*.02	323.71*.01
r = NOx percent emission reduction	5.5%	7%	5%
	11.40	6.48	3.24

1999 Emissions Goal = 248.74

337.72*.85=287.06 (15% plan goal without Kewaunee County)

329.01*.09=29.61 287.06-29.61-8.71=248.74 (this would have been the 1999 goal for 8 counties)

Creditable Emission Reductions

• Phase 2 RFG	5.8	5.8	5.8
• OBD test	1.4	3.4	4.4
• Fleet effects NLEV, T2/low S	4.6	13.73	16.6
less growth		-3.33	-2.3
TOTAL	11.8	19.6	24.5
		2002-2005	2005-2007
mobile sources growth		3.33	2.3

emissions goal for ROP years
(previous goal – needed reduction
- FTC)

	2002	2005	2007
248.74-11.40-3.3	234.04-6.48-1.8	225.76-3.24-.2	222.32
234.04	225.76	222.32	

Cummulative VOC reductions

ROP Red. Goal	11.40	17.88	21.12
Creditable Mobile Red.	11.80	19.6	24.5
Difference	0.4	1.72	3.38

VOC Contingency .4 tpd
0.12% in 2002, .3% in 2005, .6% in 2007

OBD VOC reductions 1.4 tpd 3.4 tpd 4.4 tpd

Projected Emissions, With Mobile Source SIP Controls

Point	44.99	45.30	45.52
Area	93.5	94.6	95.33
Off Road	36.88	33.22	30.78
Highway	53.4	45.6	40.7
TOTAL	228.77	218.72	212.33

Projected Emissions, No Additional SIP Controls

Point	44.99	45.30	45.52
Area	93.5	94.6	95.33
Off Road	36.88	33.22	30.78
Highway	65.2	68.53	70.83
TOTAL	240.57	241.65	242.46

NOx Calculations

Step 1:

1990 Base Year NOx Inventory (anthropogenic and biogenic) for the 8 original Nonattainment Counties.

• EGU Sources	160.88 tpd
• Small EGU Sources	3.97 tpd
• Industrial Sources	12.67 tpd
• Area Sources	22.00 tpd
• Non-Highway Sources	60.00 tpd
• Highway Mobile Sources	136.80 tpd
• Biogenic Emissions	NA tpd

TOTAL	396.32 tpd
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Step 2: 1990 Rate of Progress Inventory (9 Counties)

• EGU Sources	160.88 tpd
• Small EGU Sources	3.97 tpd
• Industrial Sources	12.67 tpd
• Area Sources	22.00 tpd
• Non-Highway Sources	60.00 tpd
• Highway Mobile Sources	136.80 tpd

TOTAL	396.32 tpd
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Step 3: Adjust Baseline to remove noncreditable NOx reductions

Sector	Adjustments			
	1999	2002	2005	2007
Point Sources	0	0	0	0
Area Sources	0	0	0	0
Highway Mobile	28.5 tpd	33.2 tpd	35.5 tpd	36.2 tpd
Non-Highway Mobile	0	0	0	0
TOTAL	28.5 tpd	33.2 tpd	35.5 tpd	36.2 tpd

ADJUSTED BASE YEAR NOx Inventory

	1999	2002	2005	2007
	367.82	363.12 tpd	360.82 tpd	360.12 tpd
Fleet Turnover CF	--	4.7 tpd	2.3 tpd	0.7 tpd

ADJUSTED BASE YEAR NOx Inventory

	1999 367.82 tpd	2002 363.12 tpd	2005 360.82 tpd	2007 360.12 tpd
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ROP Calculations

USEPA method

ABY*.xx (xx is the new percentage change in NOx emissions since the previous ABY)	363.12*.055	360.82*.07	360.12*.05
additional tons of reduction needed	19.97	25.26	18.01
emissions goal for ROP years (previous emissions goal – needed reduction-FTC)	367.82-19.97-4.7 343.15	343.15-25.26-2.3 315.59	315.59-18.01-0.7 296.88

Projected Emissions

No additional SIP controls

	2002	2005	2007
• EGU Sources	146.88 tpd	153.72 tpd	158.53 tpd
• Small EGU Sources	3.71 tpd	3.89 tpd	4.01 tpd
• Industrial Sources	14.18 tpd	14.47 tpd	14.75 tpd
• Area Sources	35.25 tpd	34.25 tpd	33.58 tpd
• Non-Highway Sources	52.78 tpd	51.17 tpd	50.09 tpd
• Highway Mobile Sources	136.50 tpd	110.40 tpd	92.90 tpd
TOTAL	389.30 tpd	367.90 tpd	353.86 tpd

Creditable Reductions from the SIP

I/M	13.6	10.1	6.8
Utility	38.07	53.34	58.68
Existing Source Performance standards	4.6	4.6	4.6
Performance Standards for New Sources	0.2	1.2	1.8
TOTAL	56.47	69.24	71.88

Projected Emissions net of growth

Contingency Needs 2.85% in 2002, 2.7% in 2005, 2.4% 2007	363.12*.0288 10.46 tpd	360.82*.027 9.74 tpd	360.12*.024 8.64 tpd
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Cummulative ROP Requirements	19.97	45.23	63.24
Contingency Requirement	10.46	9.74	8.64
Total Reductions Needed w/ contingency	30.43	54.97	71.88
Creditable Reductions from the SIP	56.47	69.24	71.88